

FIG. 1A

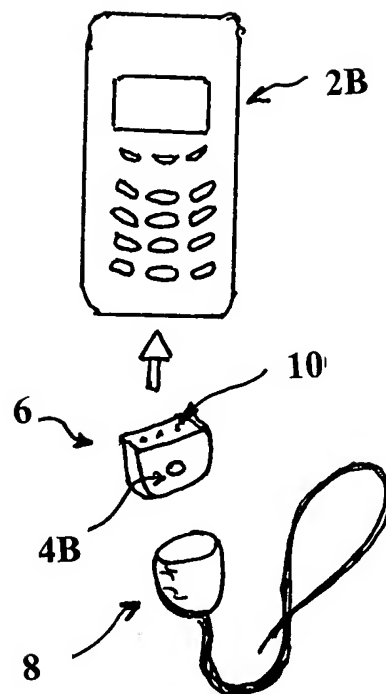


FIG. 1B

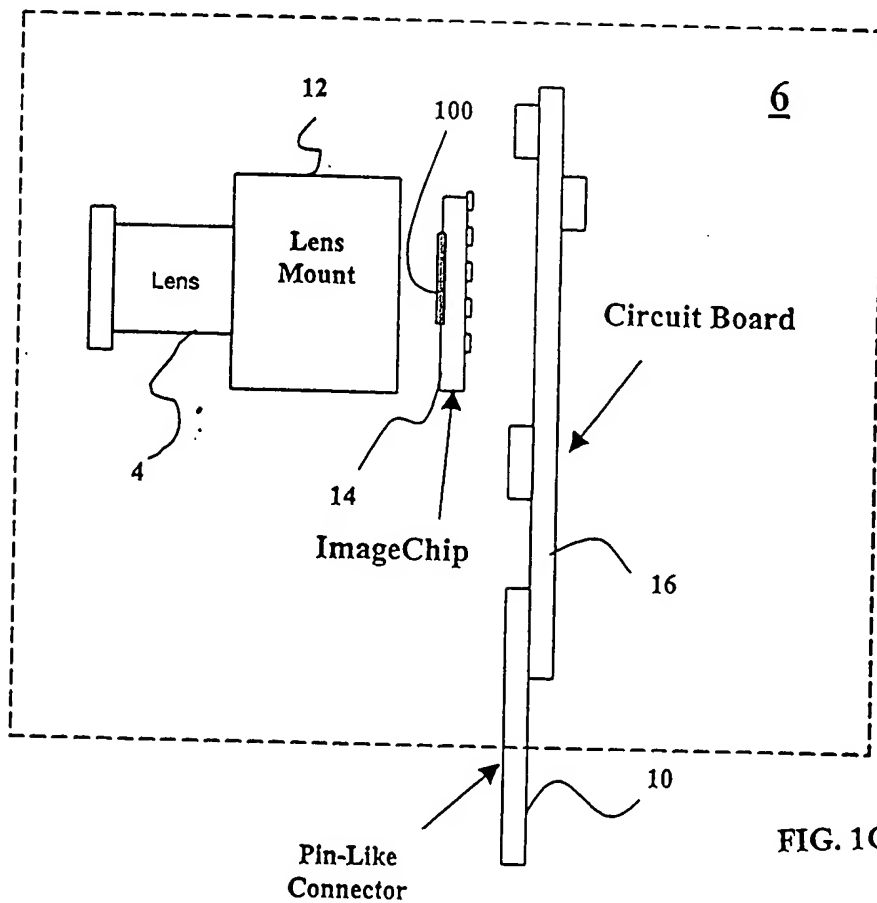


FIG. 1C

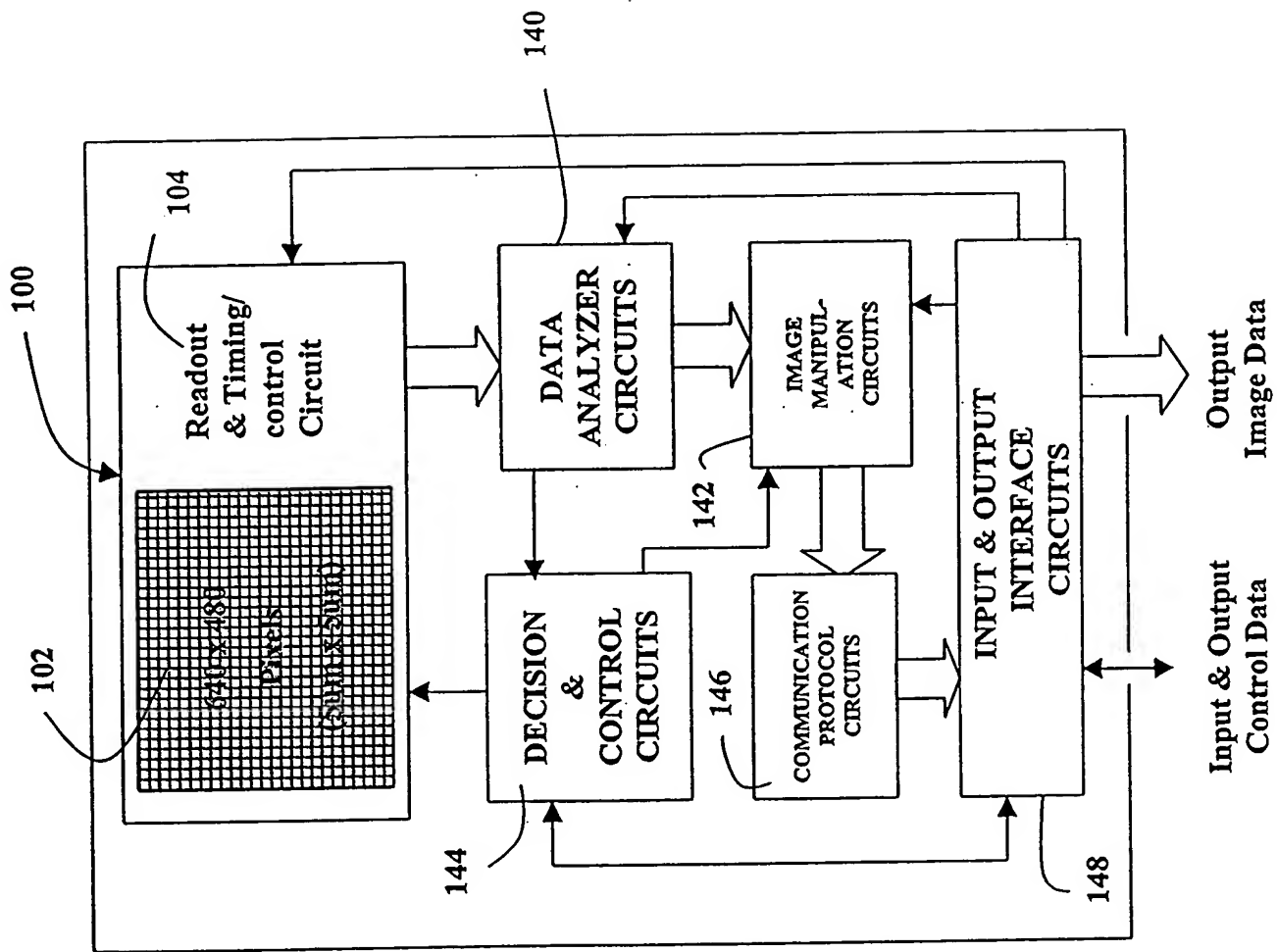


FIG. 2

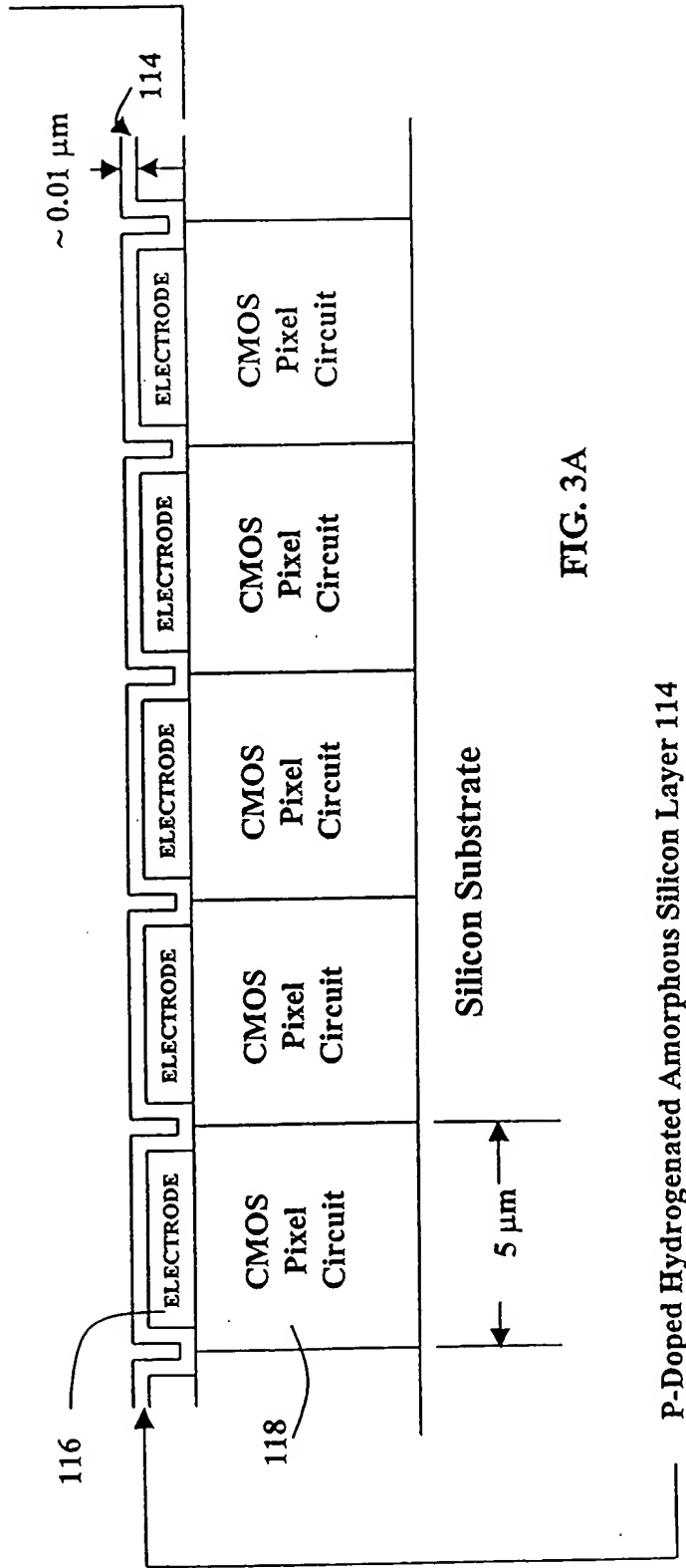
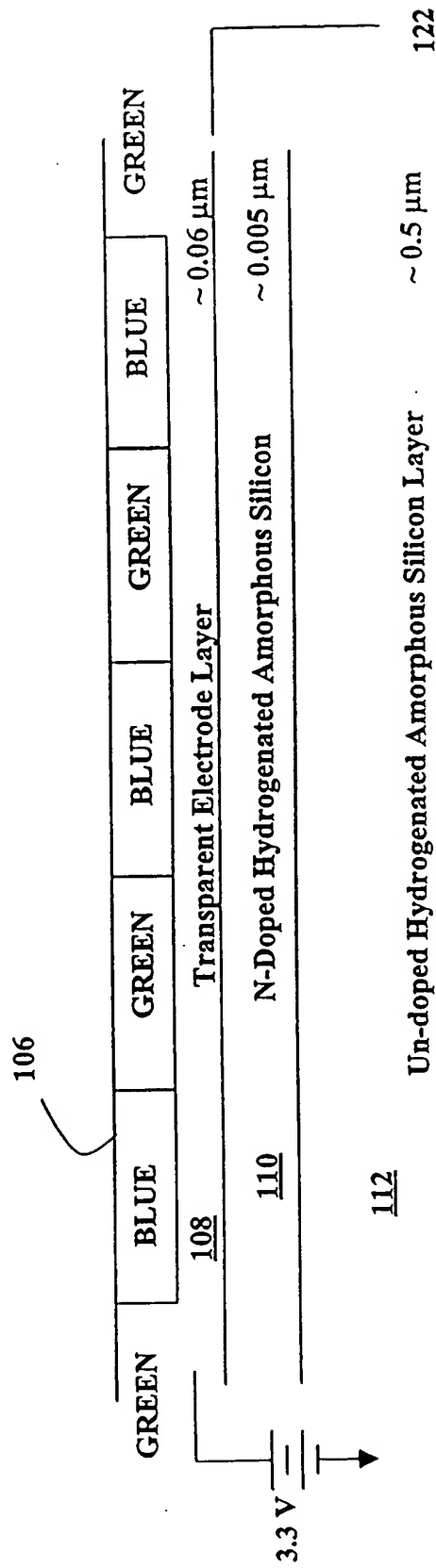
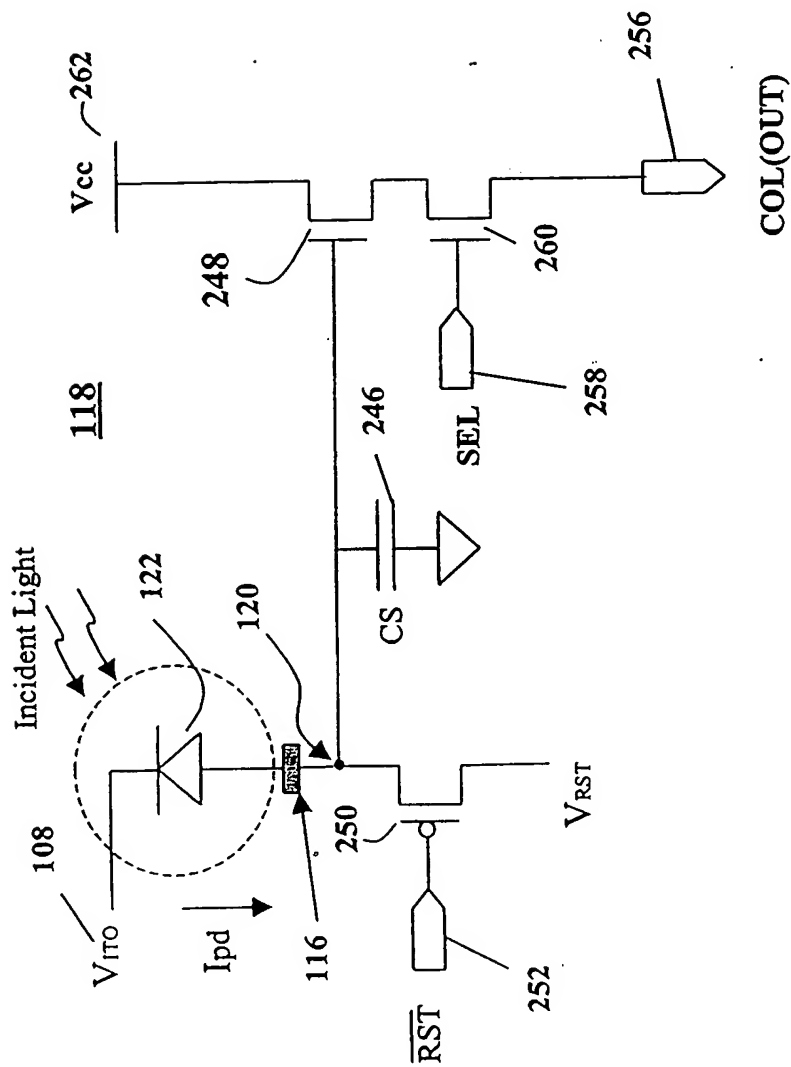


FIG. 3A

P-Doped Hydrogenated Amorphous Silicon Layer 114



# POAP Sensor Pixel Cell Array

300

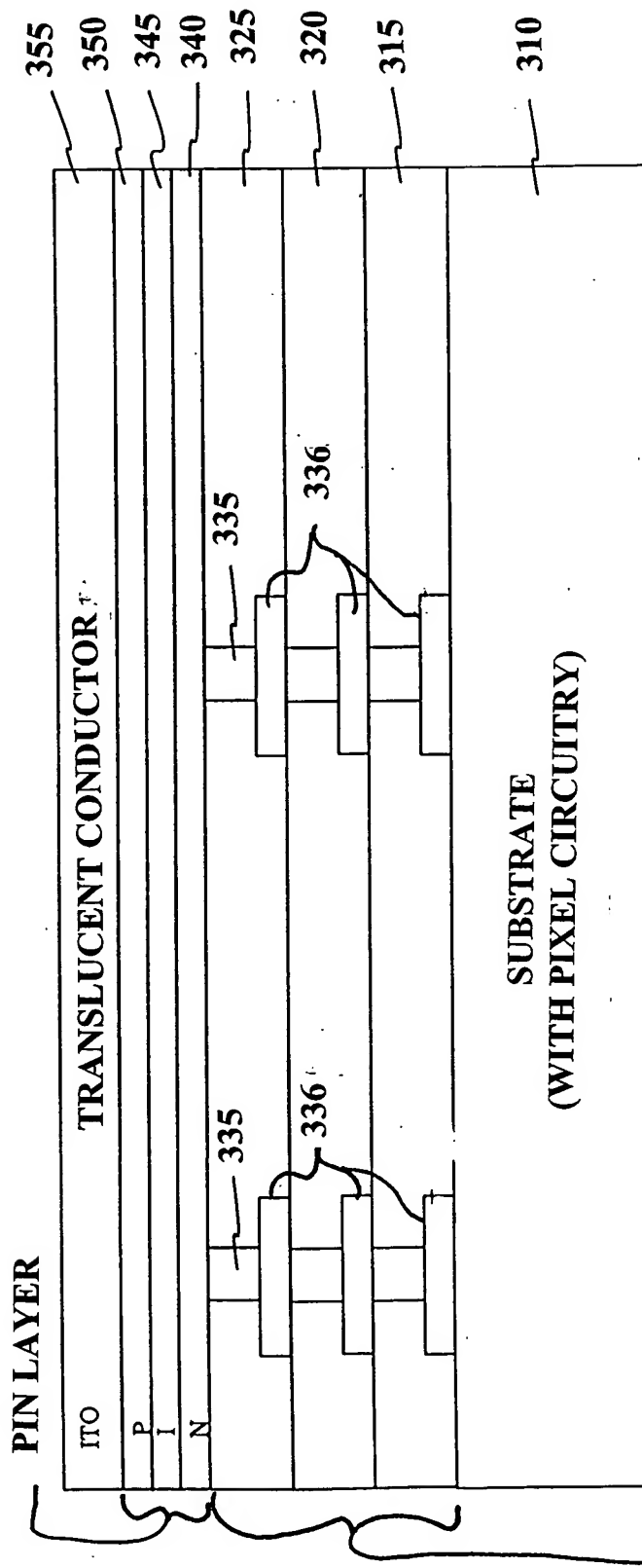


FIG. 4

# Pixel Cell Array And Related Circuitry

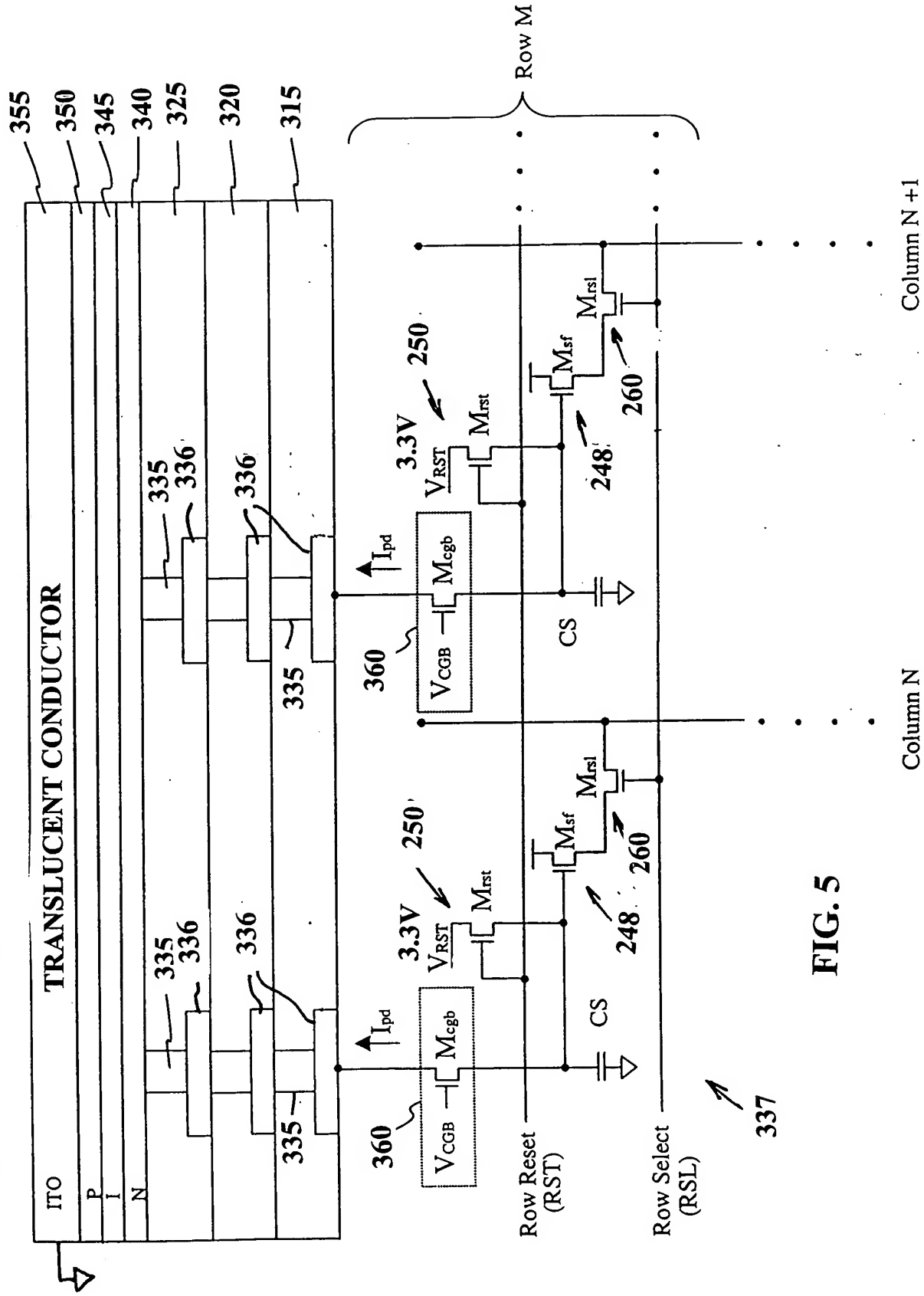
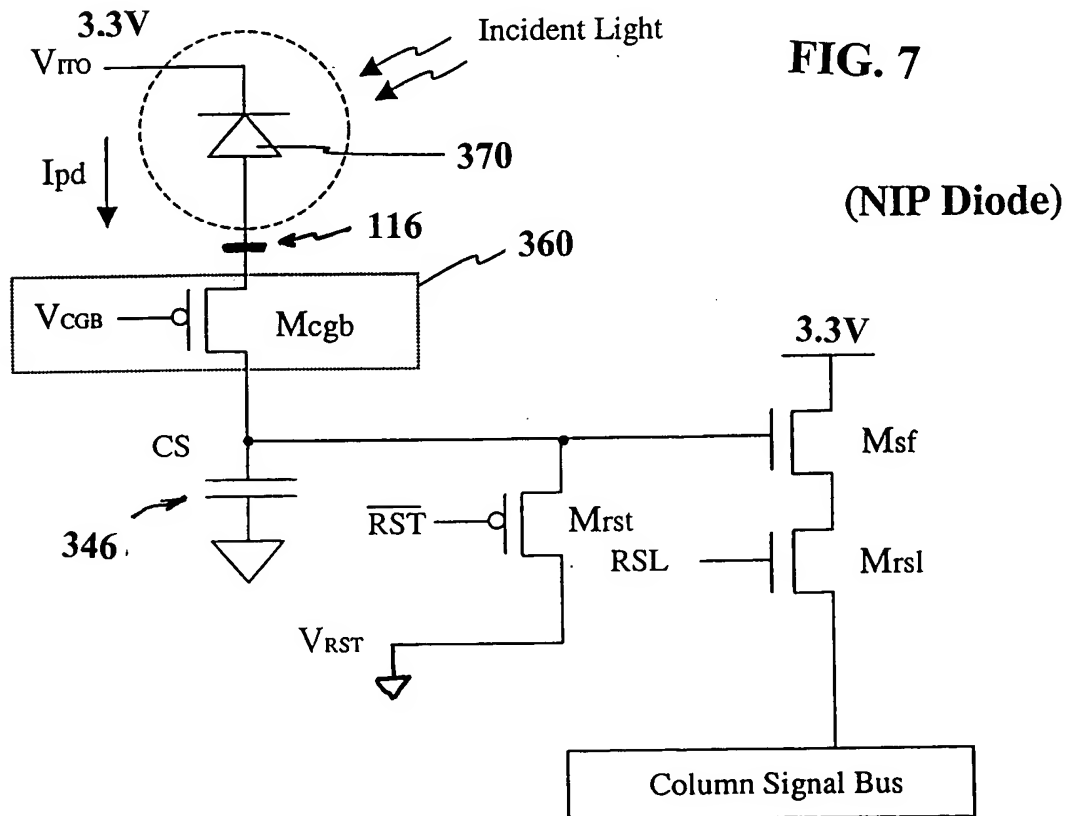
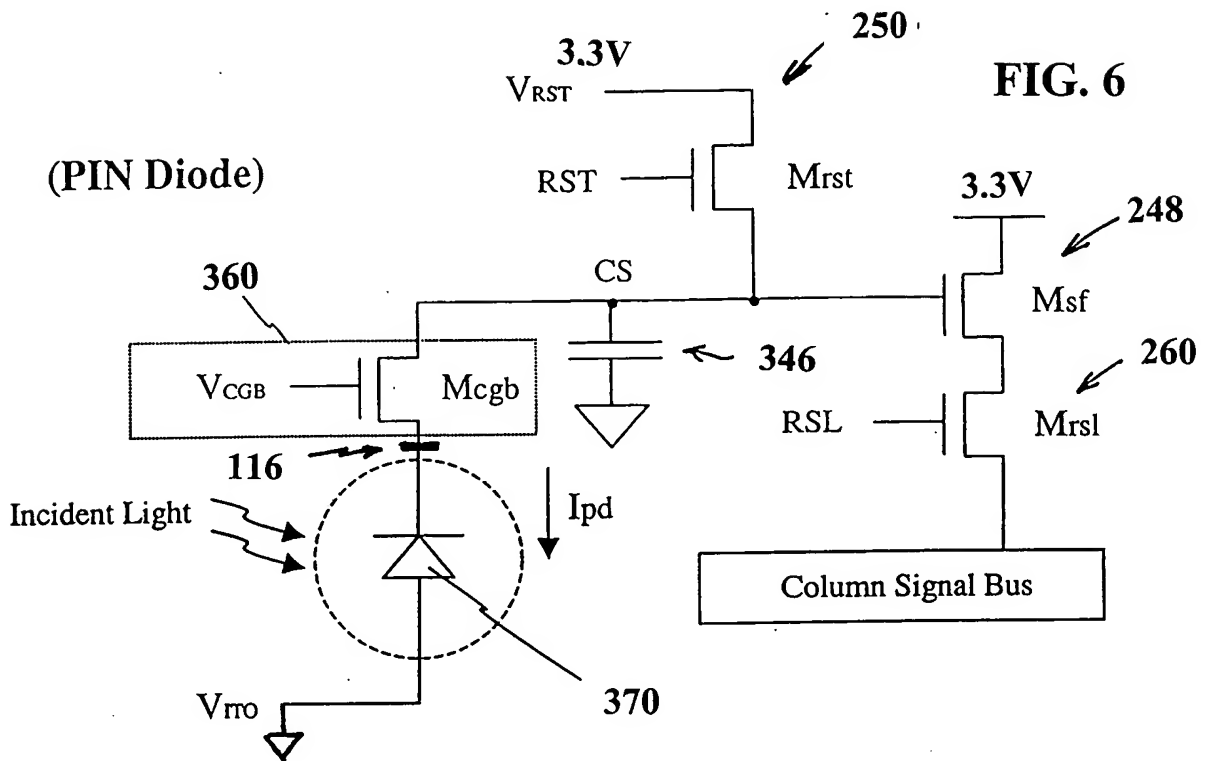


FIG. 5

# Individual Pixel Cell Circuitry



400

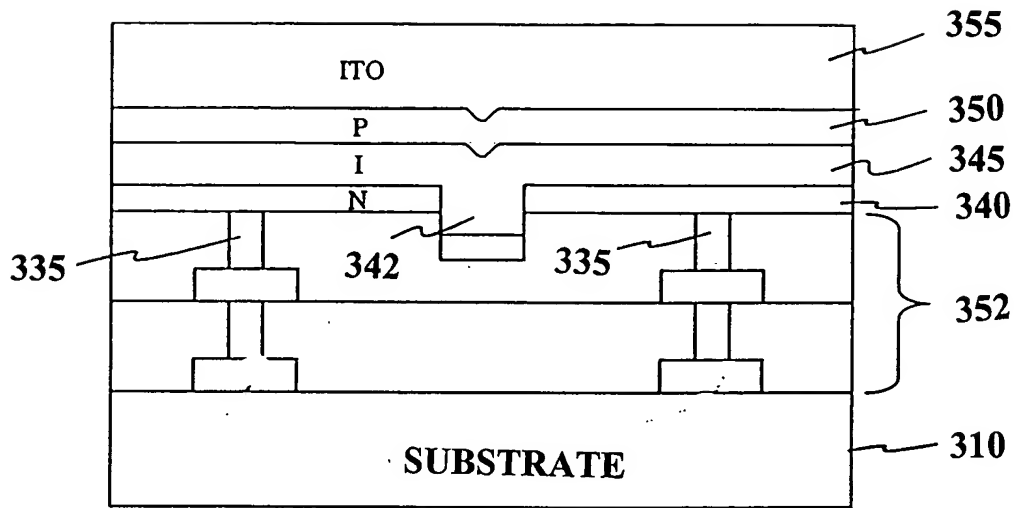


FIG. 8

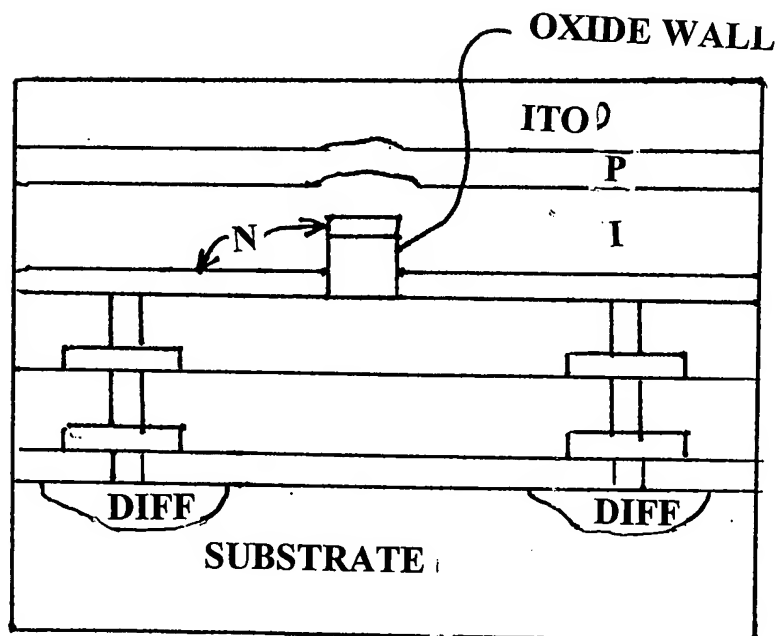


FIG. 8A



500

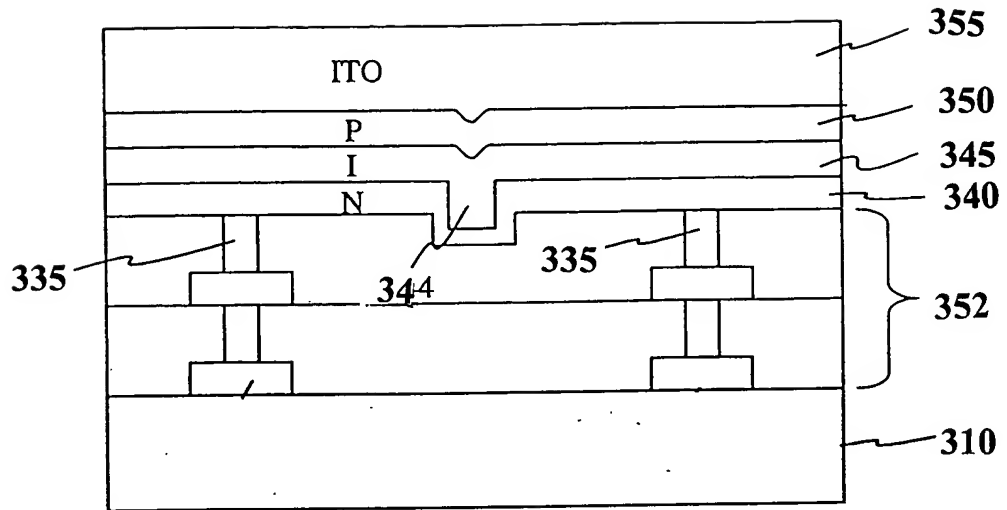


FIG. 9

600

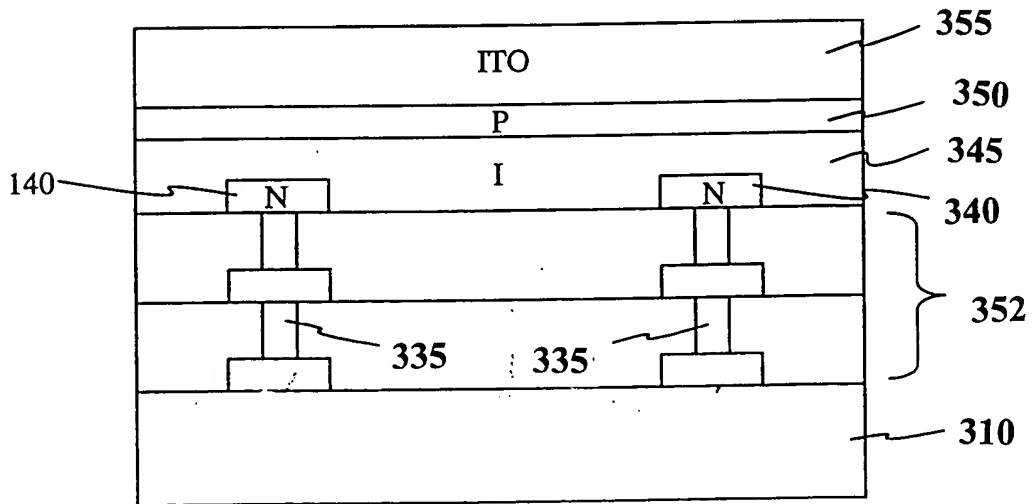


FIG. 10

# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

(PIN Diode)

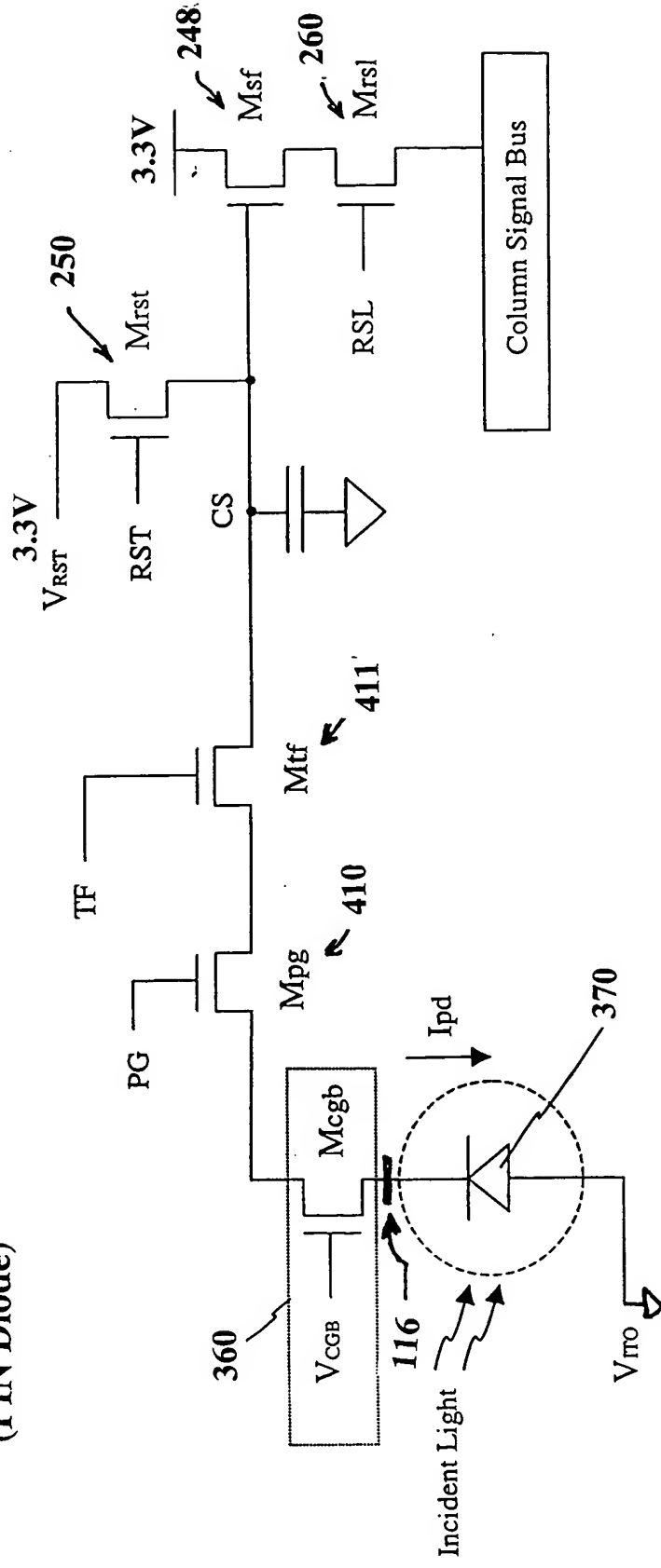


FIG. 11

# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

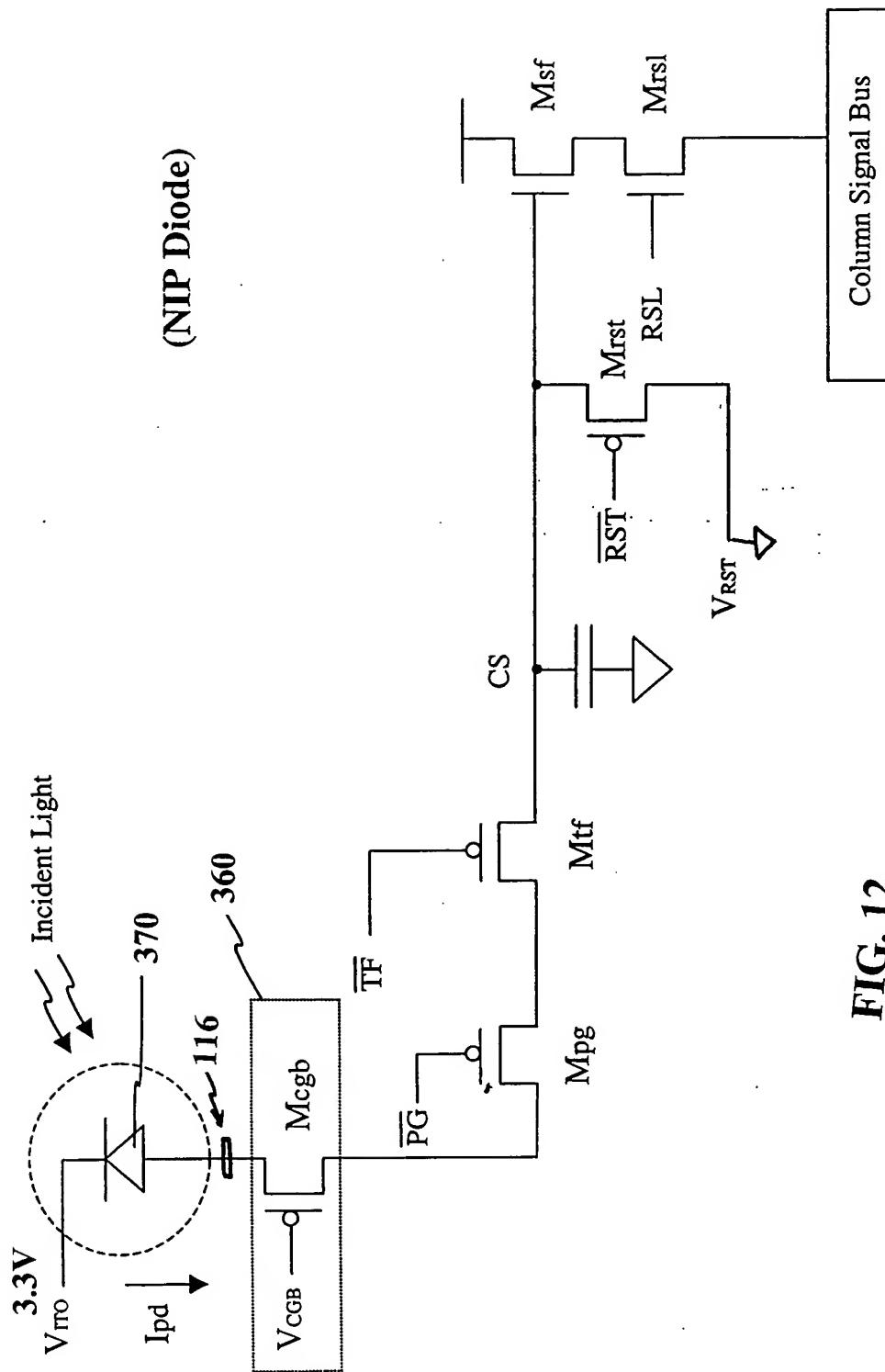
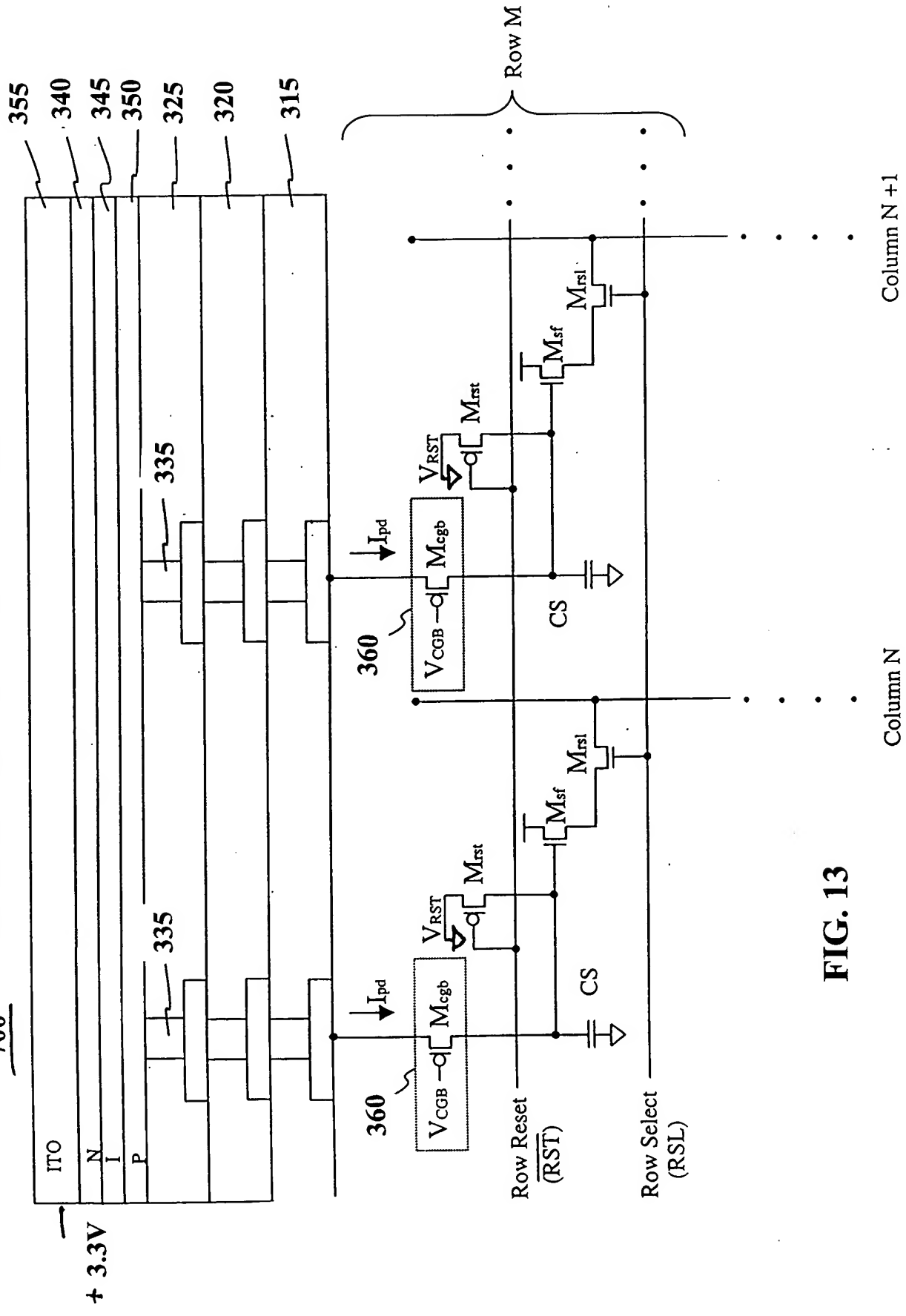


FIG. 12

700



# PBIN POAP Sensor

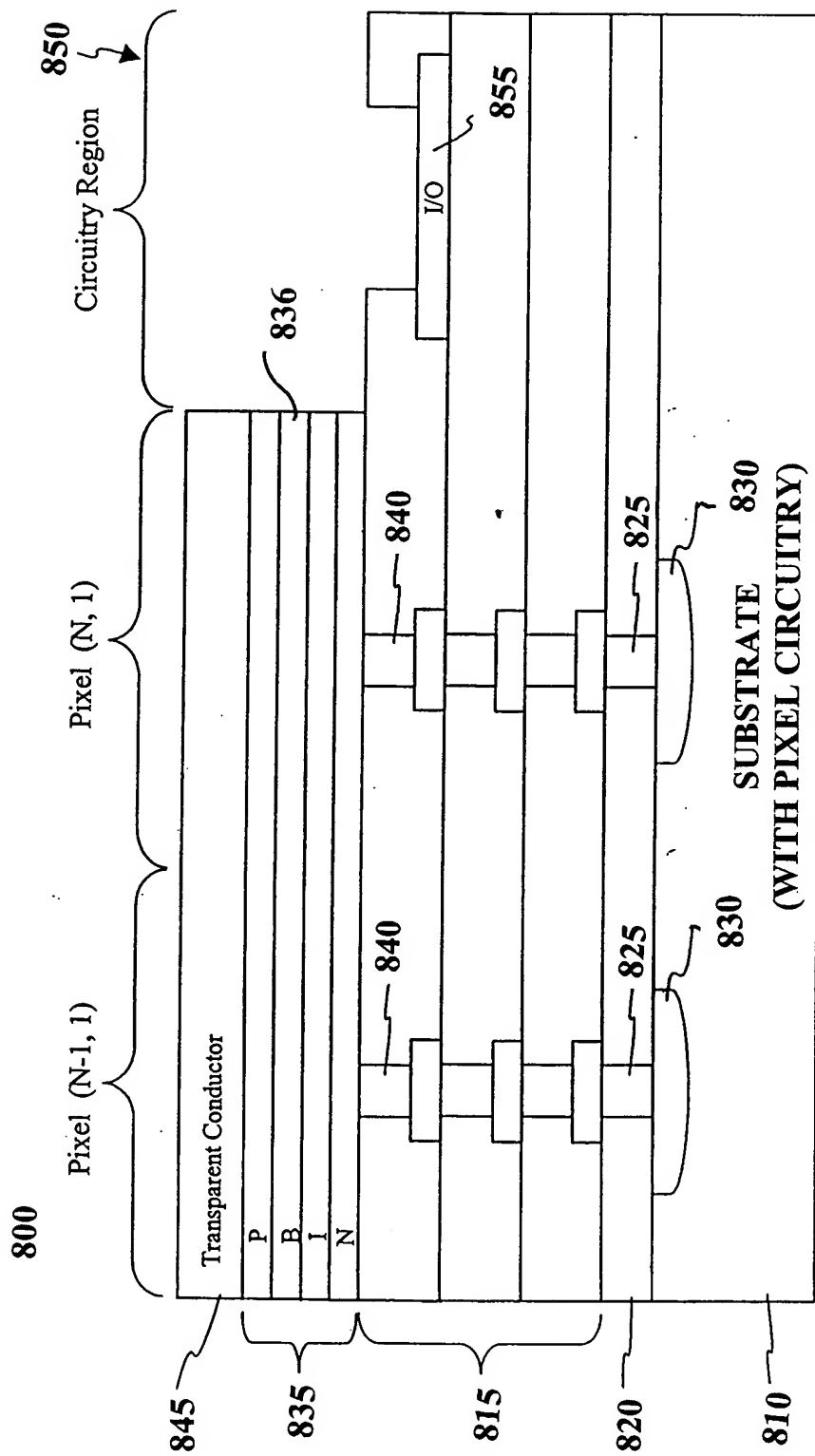
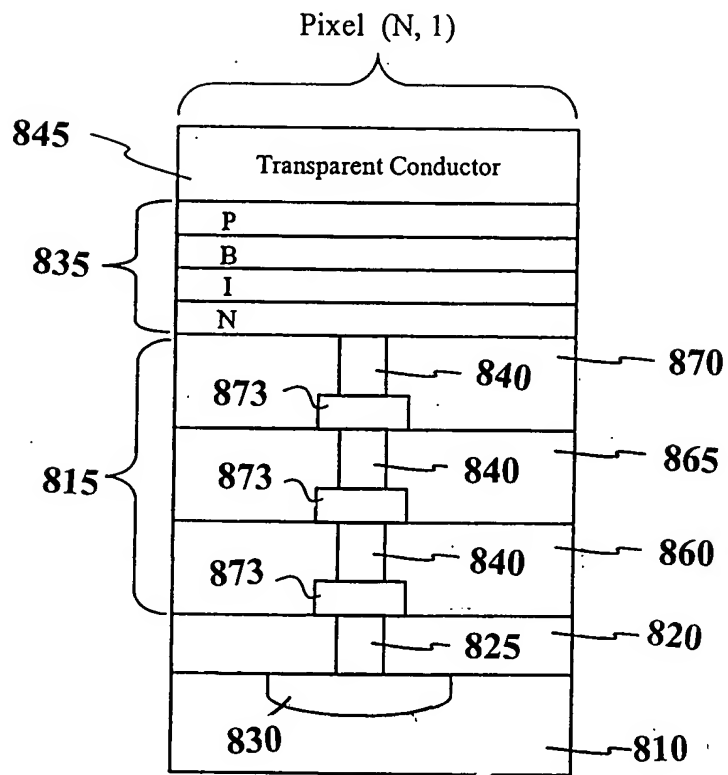


FIG. 14

## PBIN Pixel Architecture



**FIG. 15**

# PBIN Pixel Cell with Metal Pad

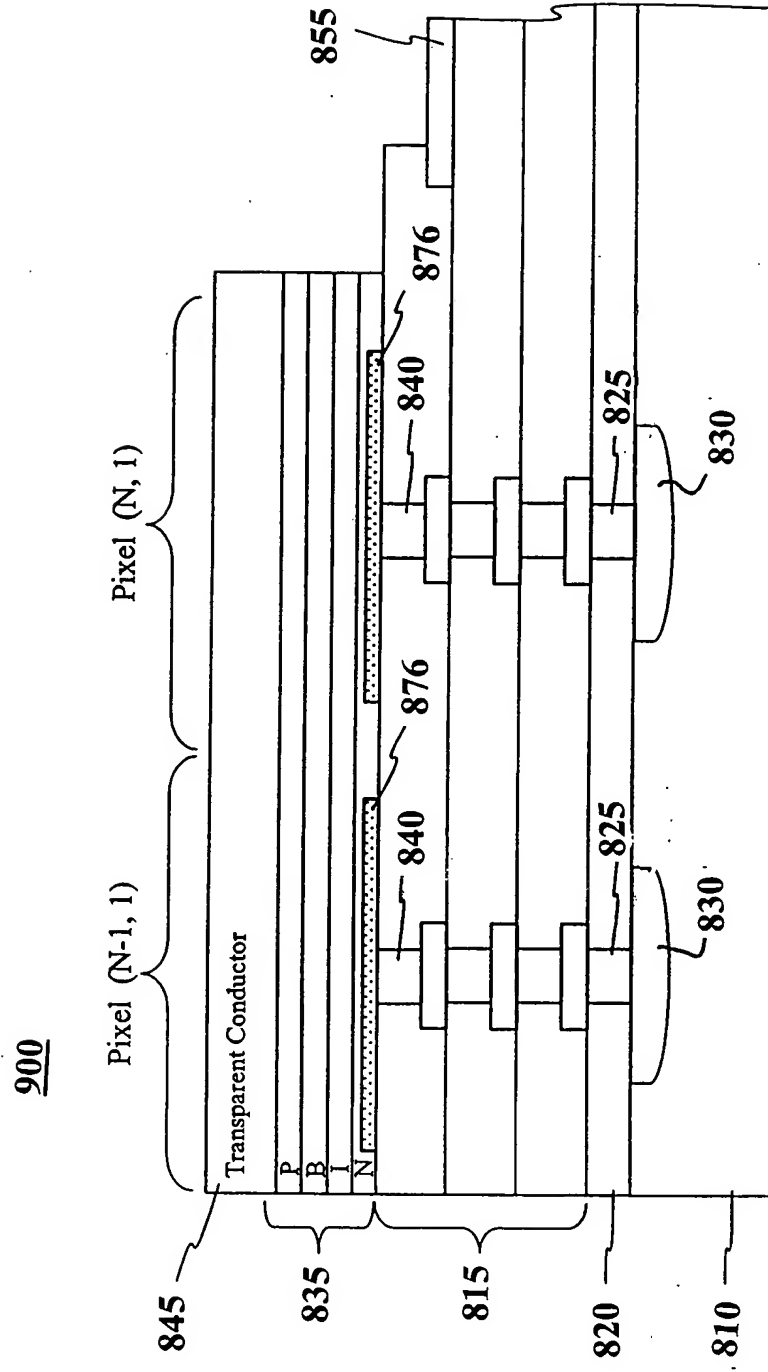


FIG. 16A

# PBIN Pixel Cell with Metal Pad (Alternative Design)

950

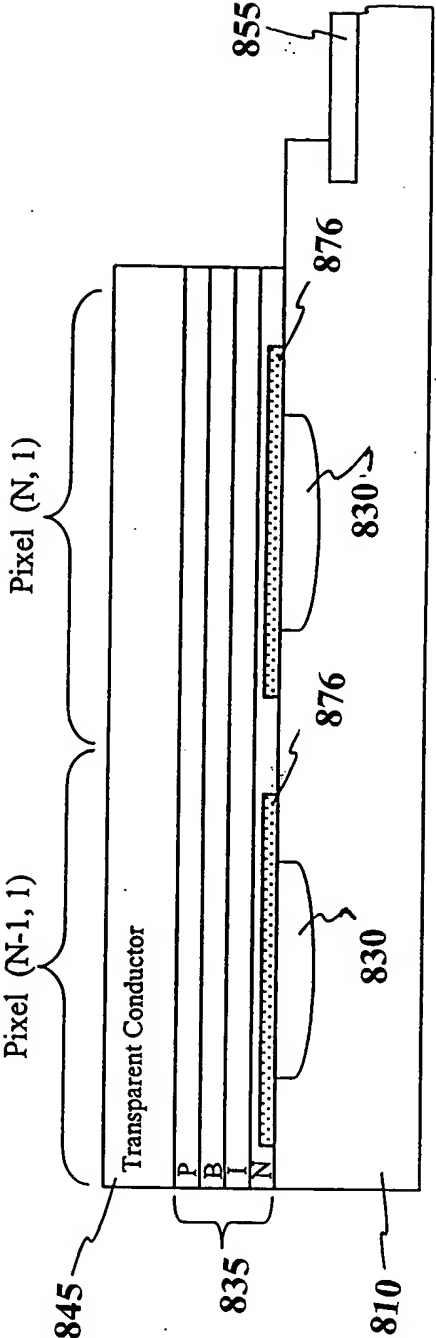
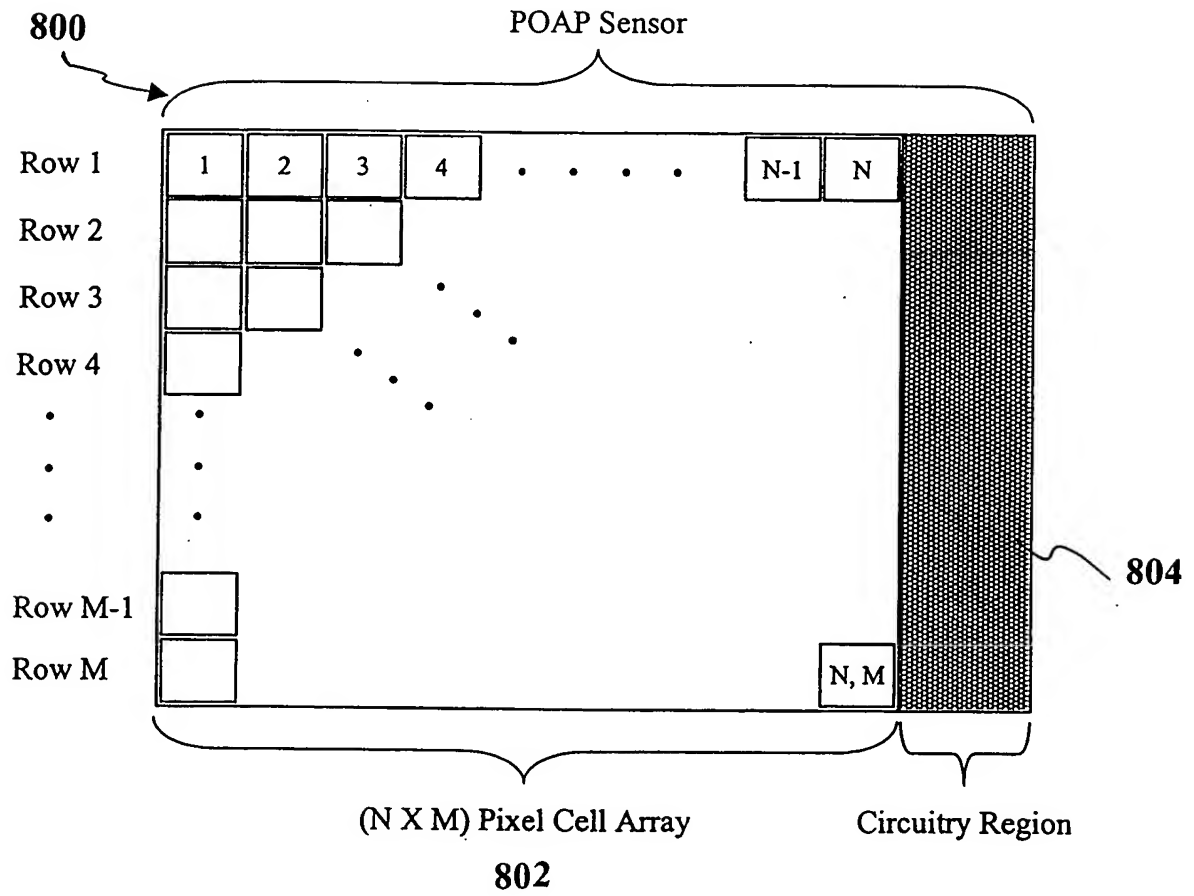


FIG. 16B



## POAP Sensor Utilizing Isolated Circuitry Region



**FIG. 17A**

## POAP Sensor Utilizing Multiple Circuitry Regions

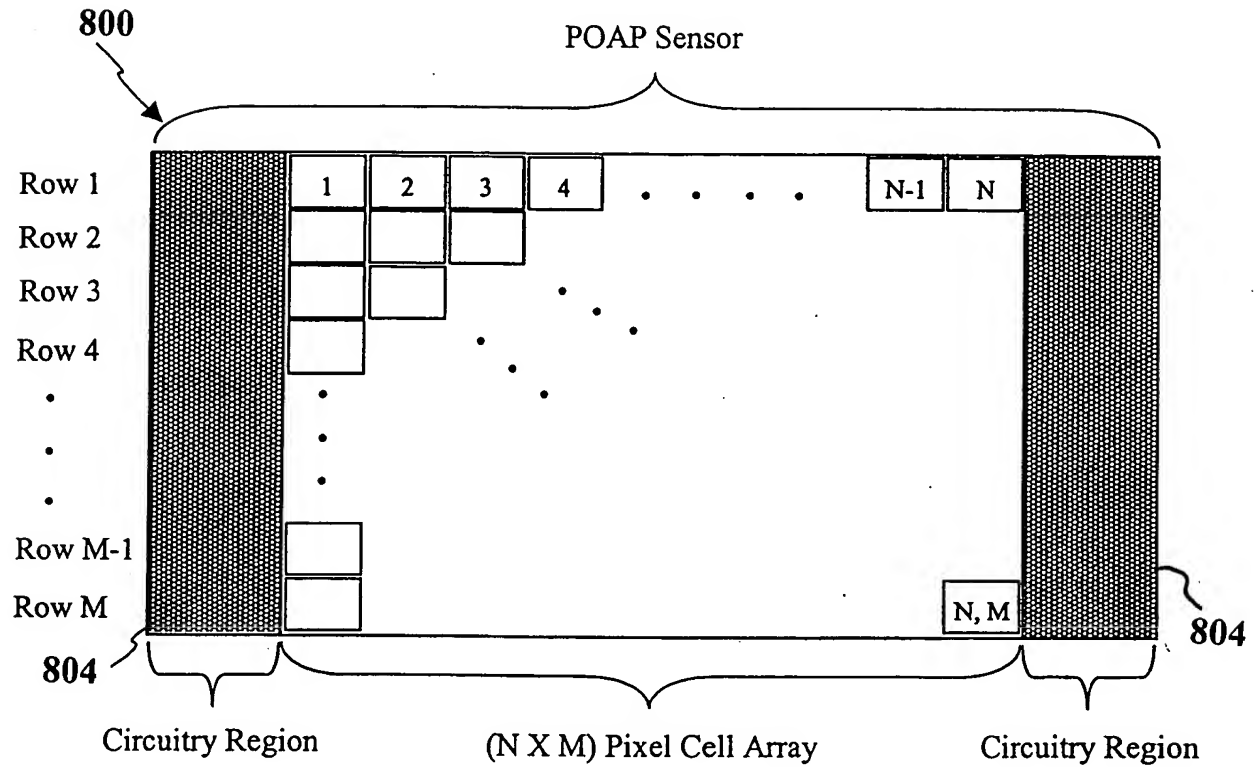


FIG.17B

## POAP Sensor Utilizing Four-Sided Circuitry Region

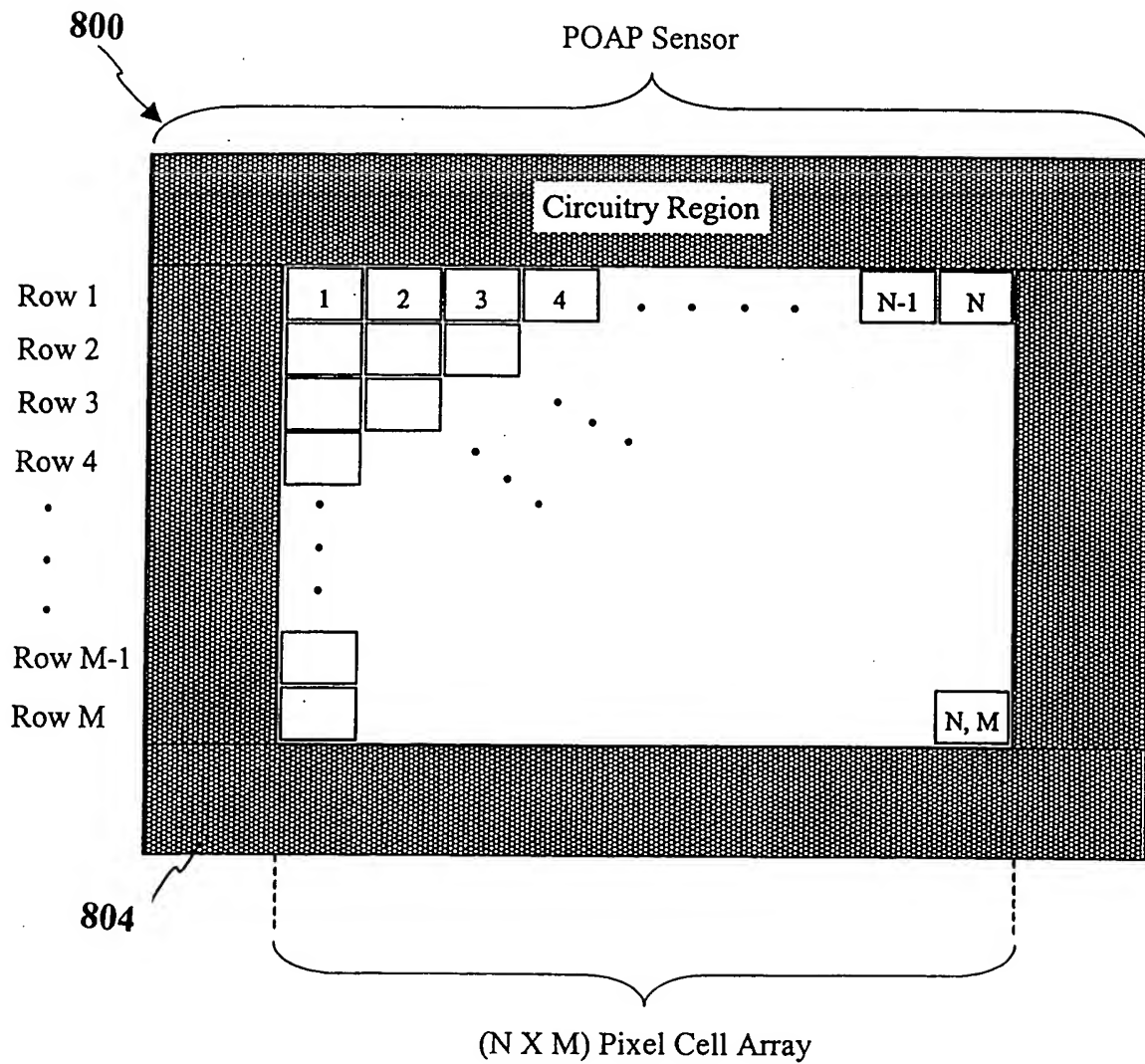


FIG. 17C

# NIBP POAP Sensor

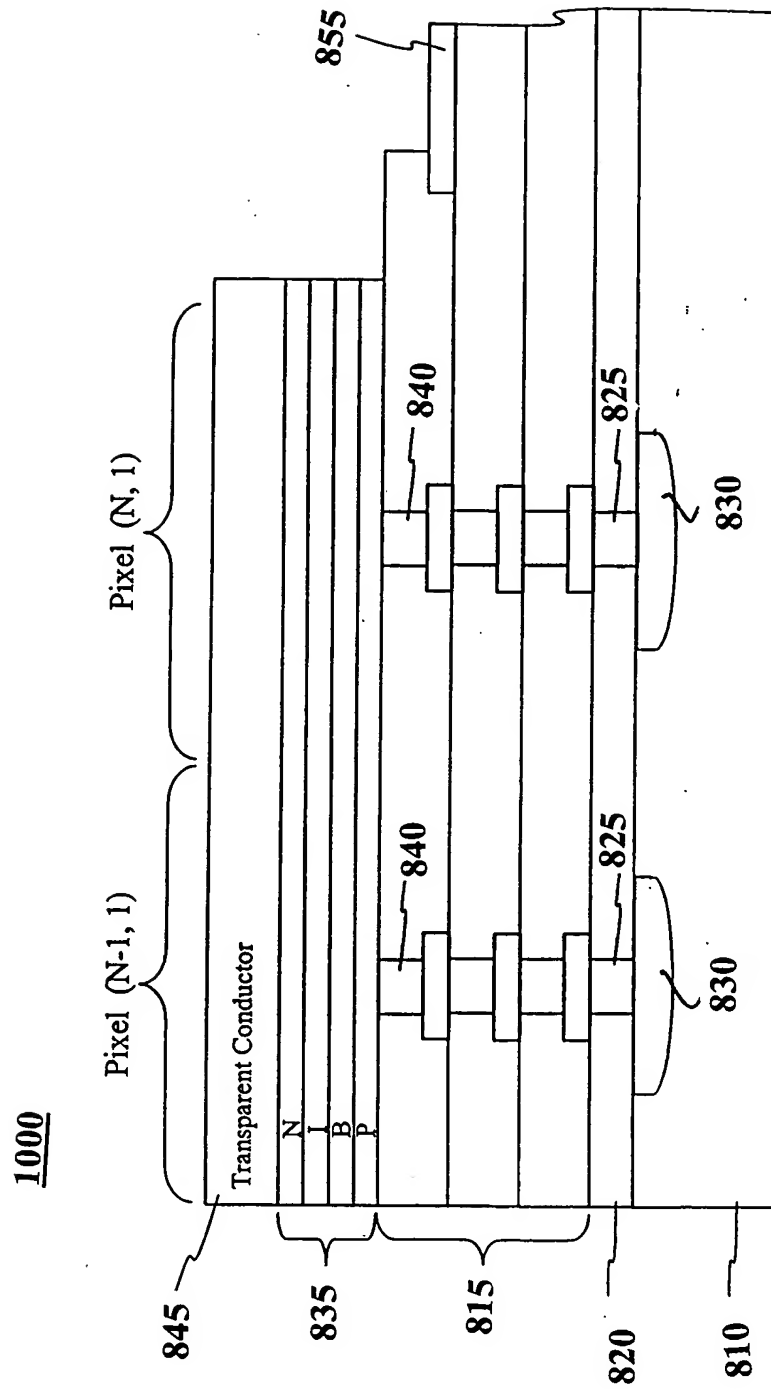


FIG. 18A

1050



# NIBP Pixel Cell with Metal Pad (Alternative Design)

1100

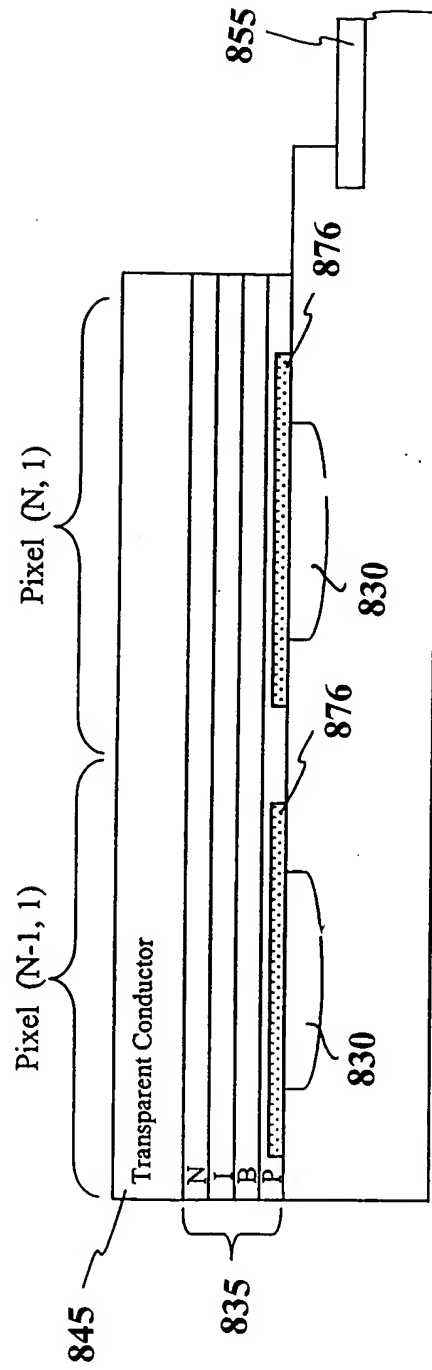
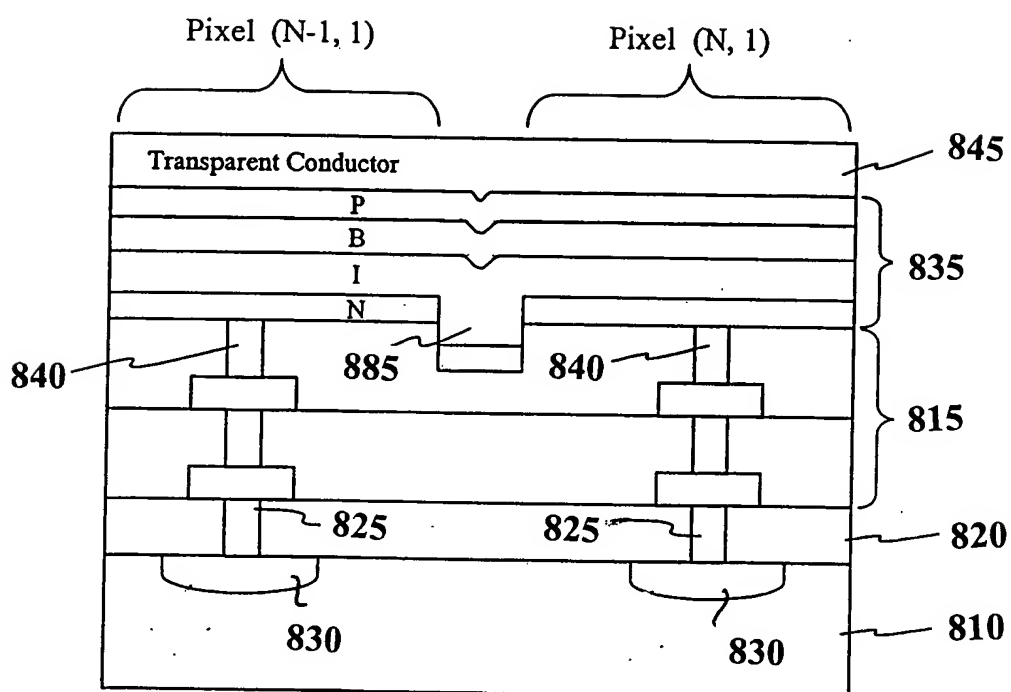


FIG. 18C

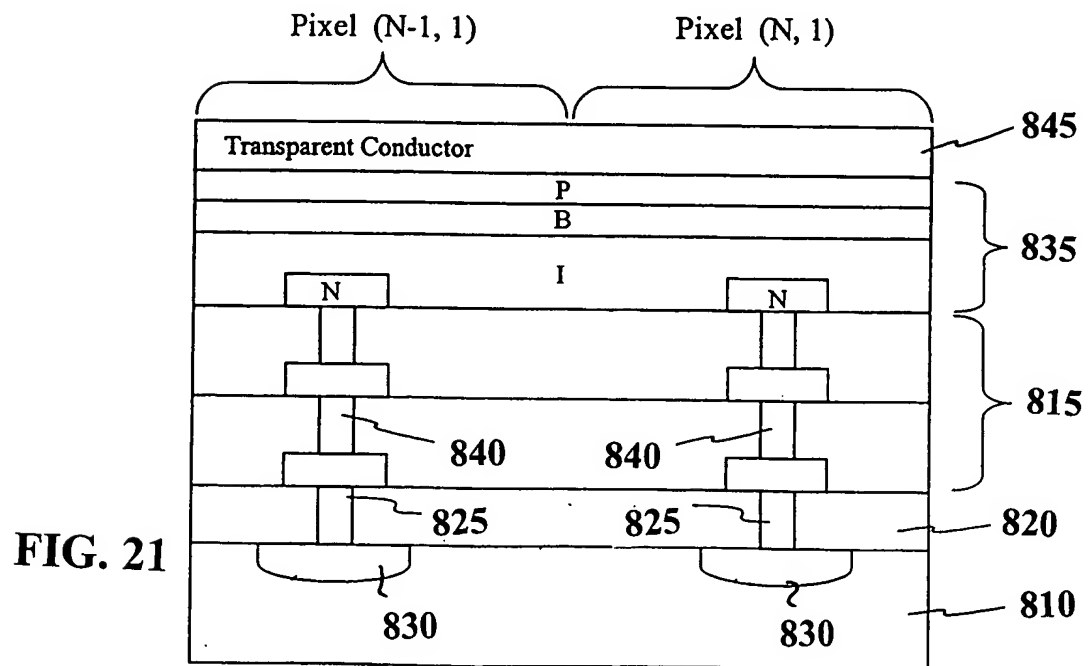
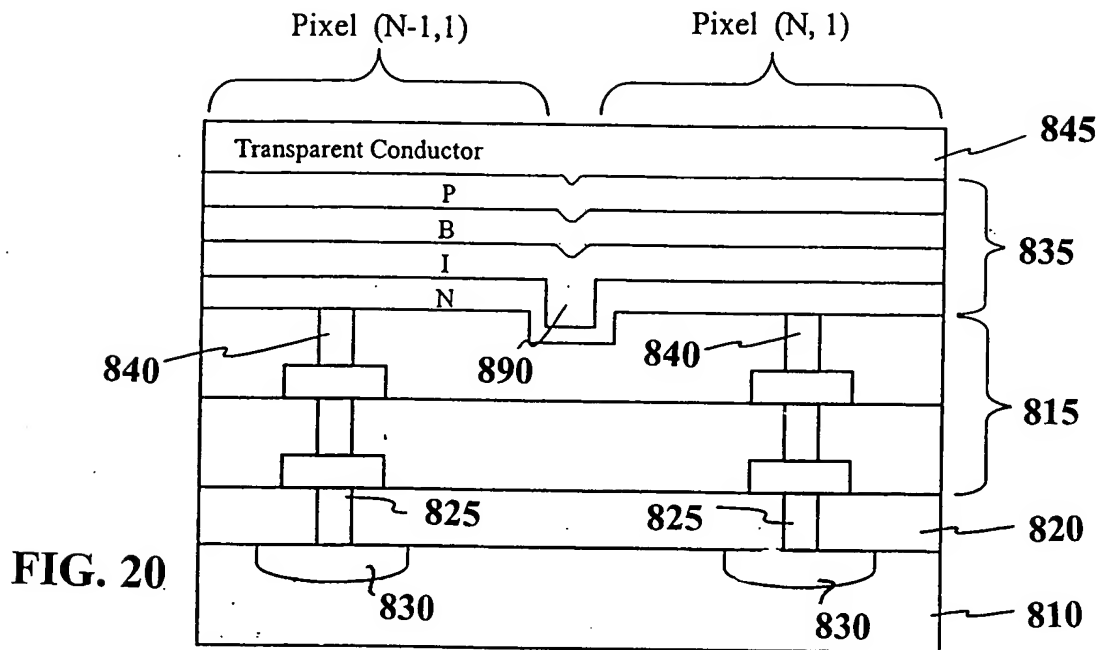
## POAP Sensor Having A Discontinuous Trench

1150

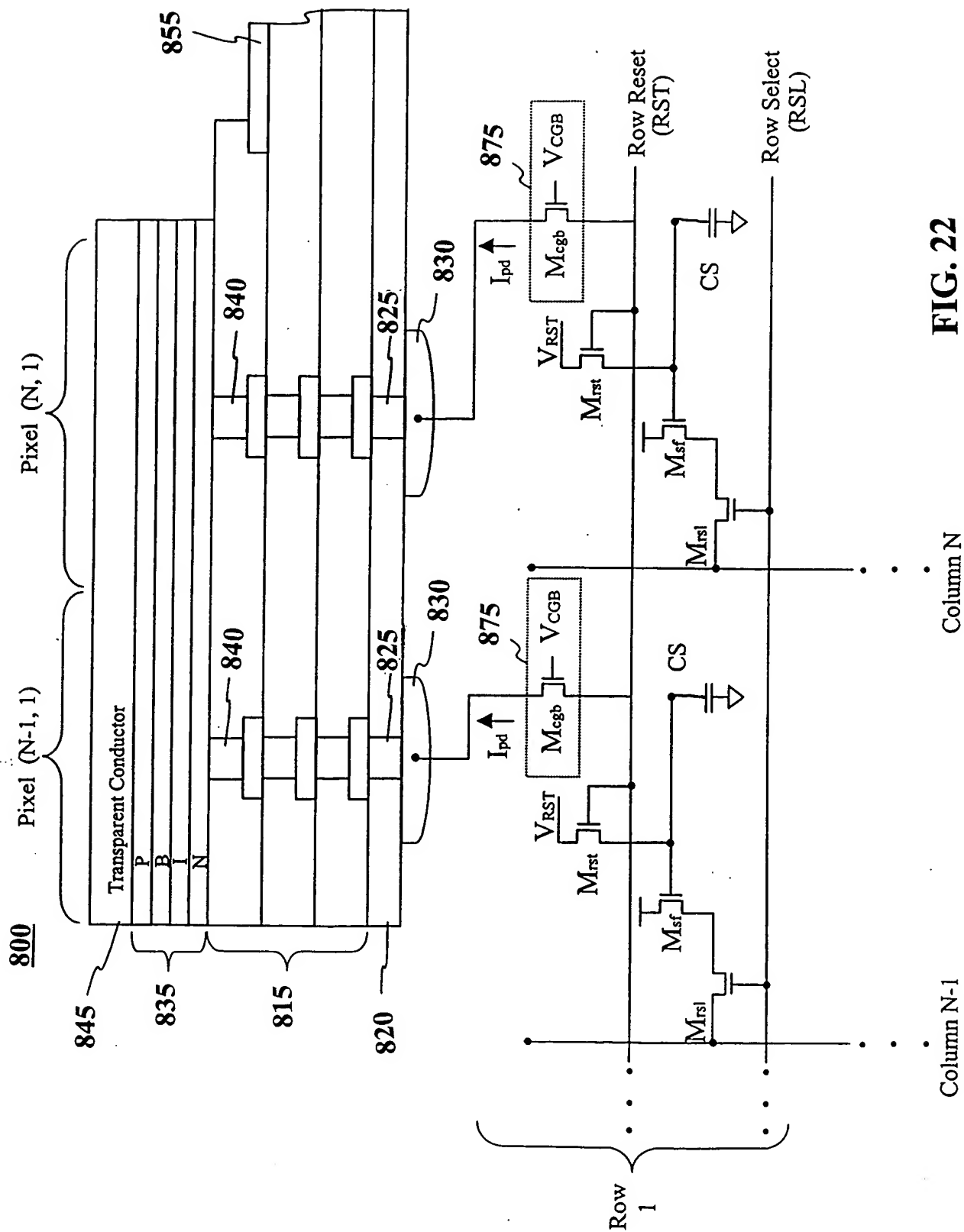


**FIG. 19**

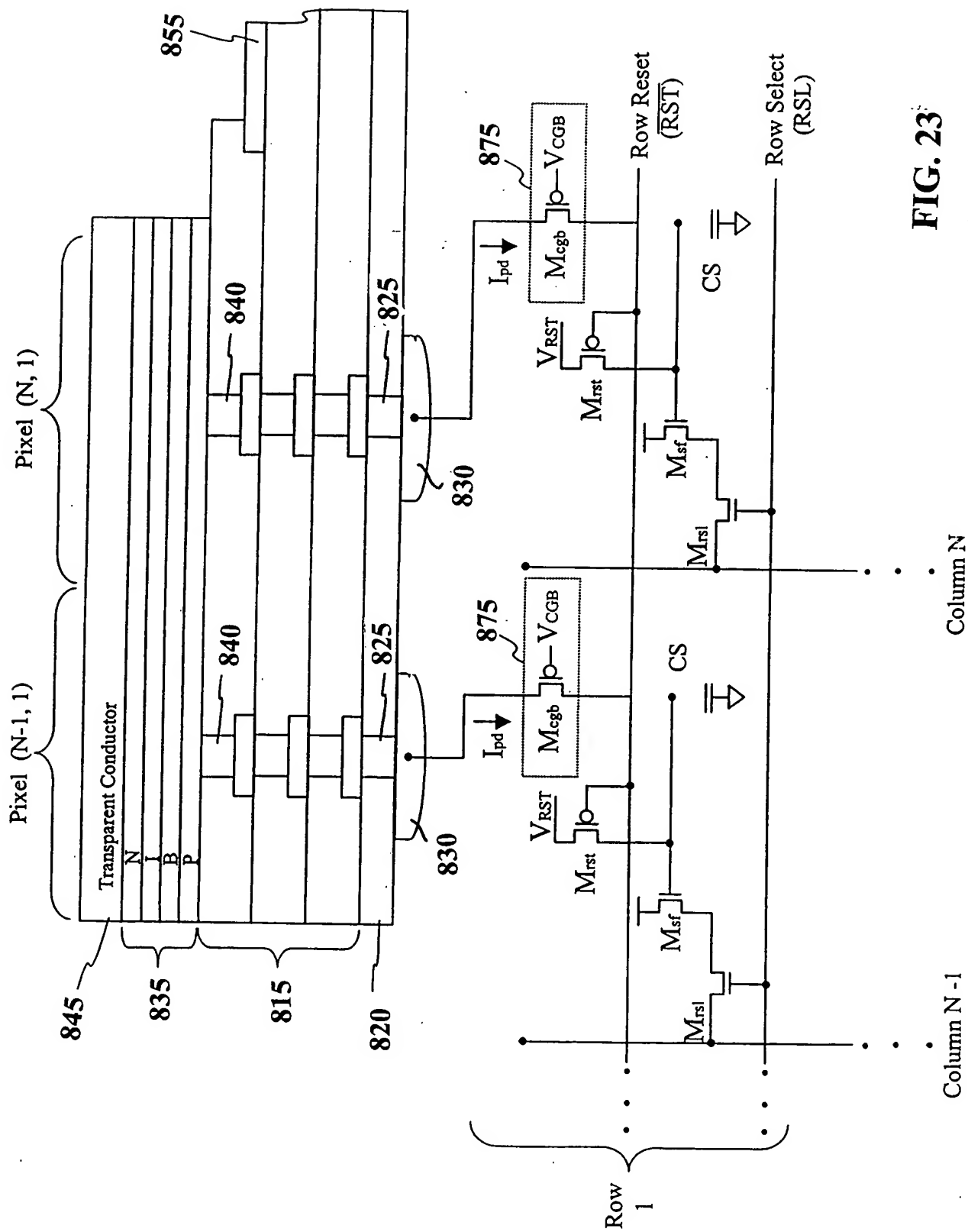
# POAP Sensors Having Trench And Patterned Bottom Layers







**FIG. 22**



# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

(PBIN Diode)

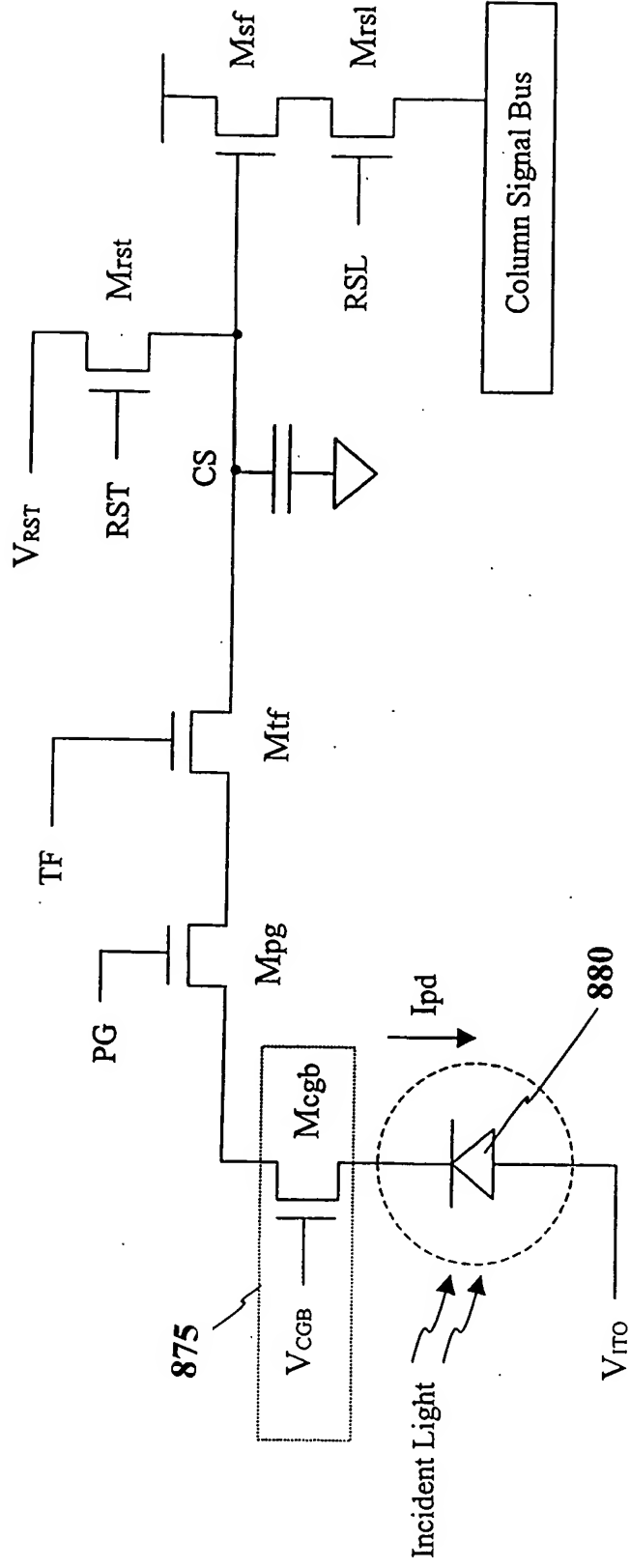


FIG. 24

# Individual Pixel Cell Circuitry (Six-Transistor Architecture)

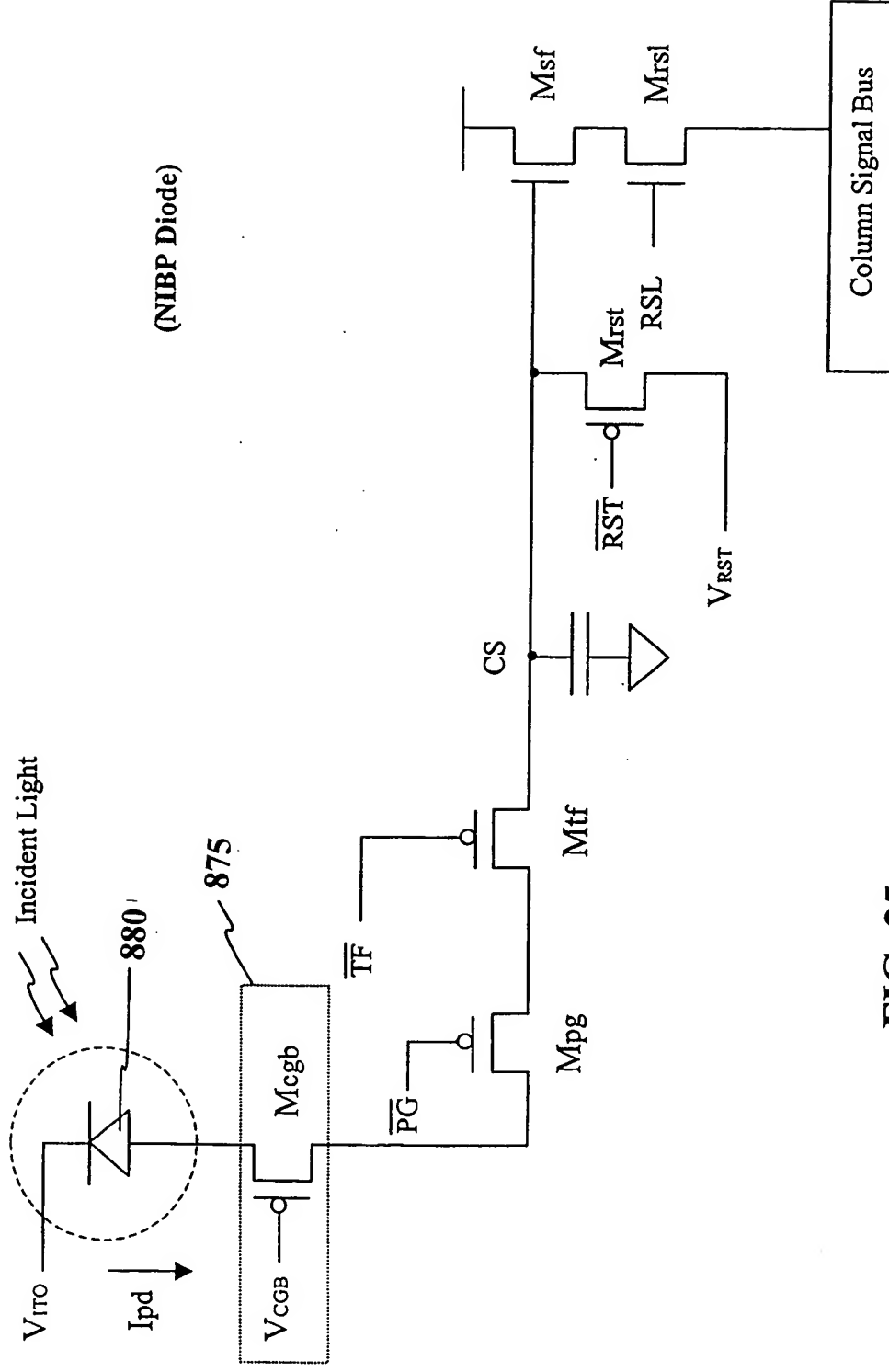


FIG. 25

## FIG. 26

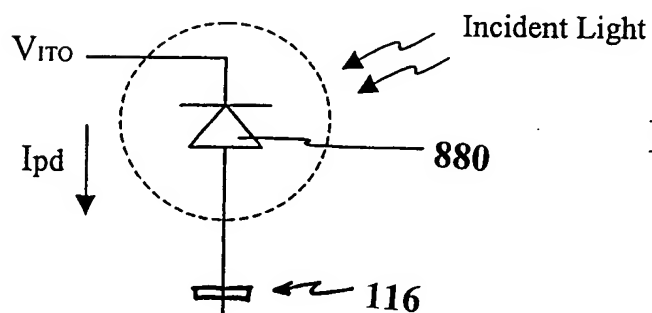
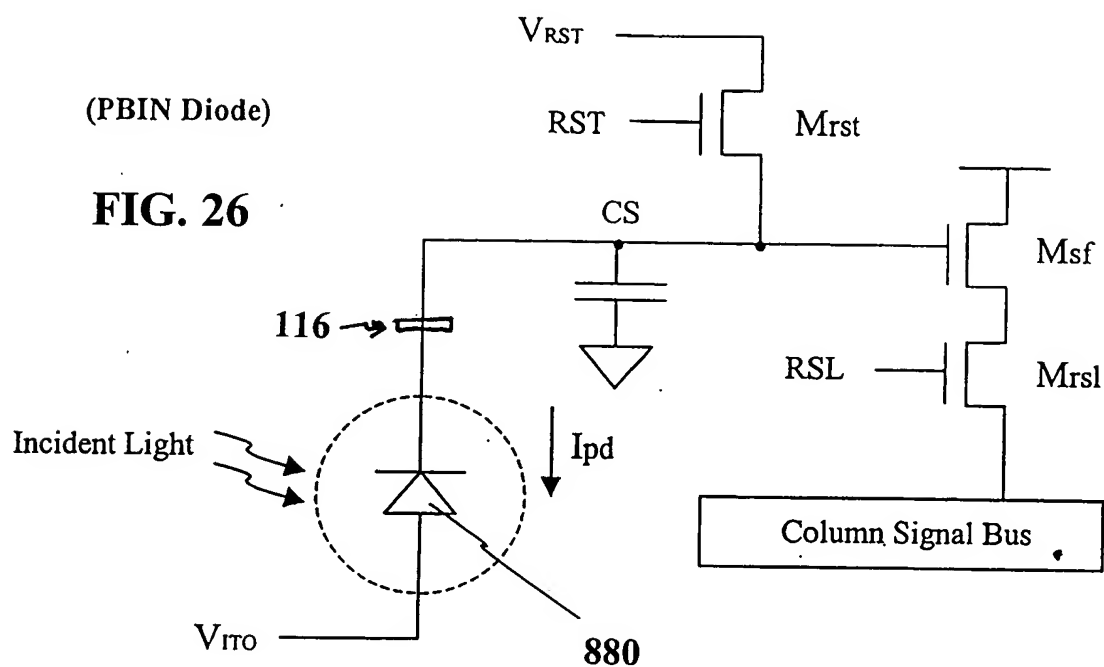
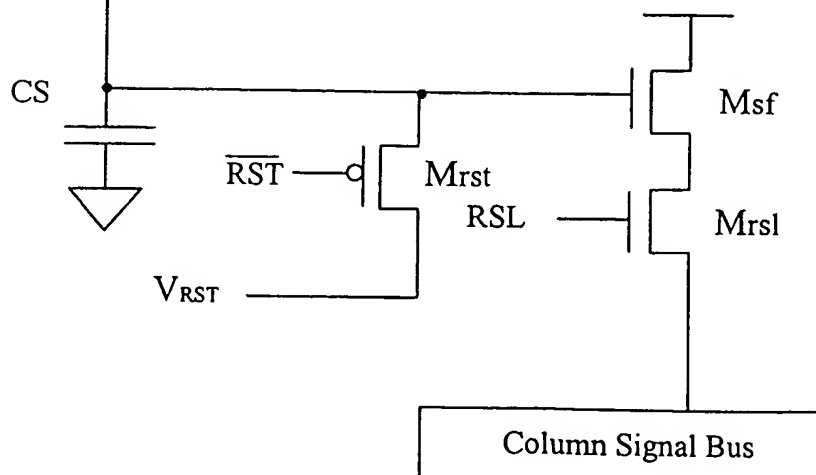


FIG. 27

(NIBP Diode)





# Individual Pixel Cell Circuitry Without GBT (Five-Transistor Architecture)

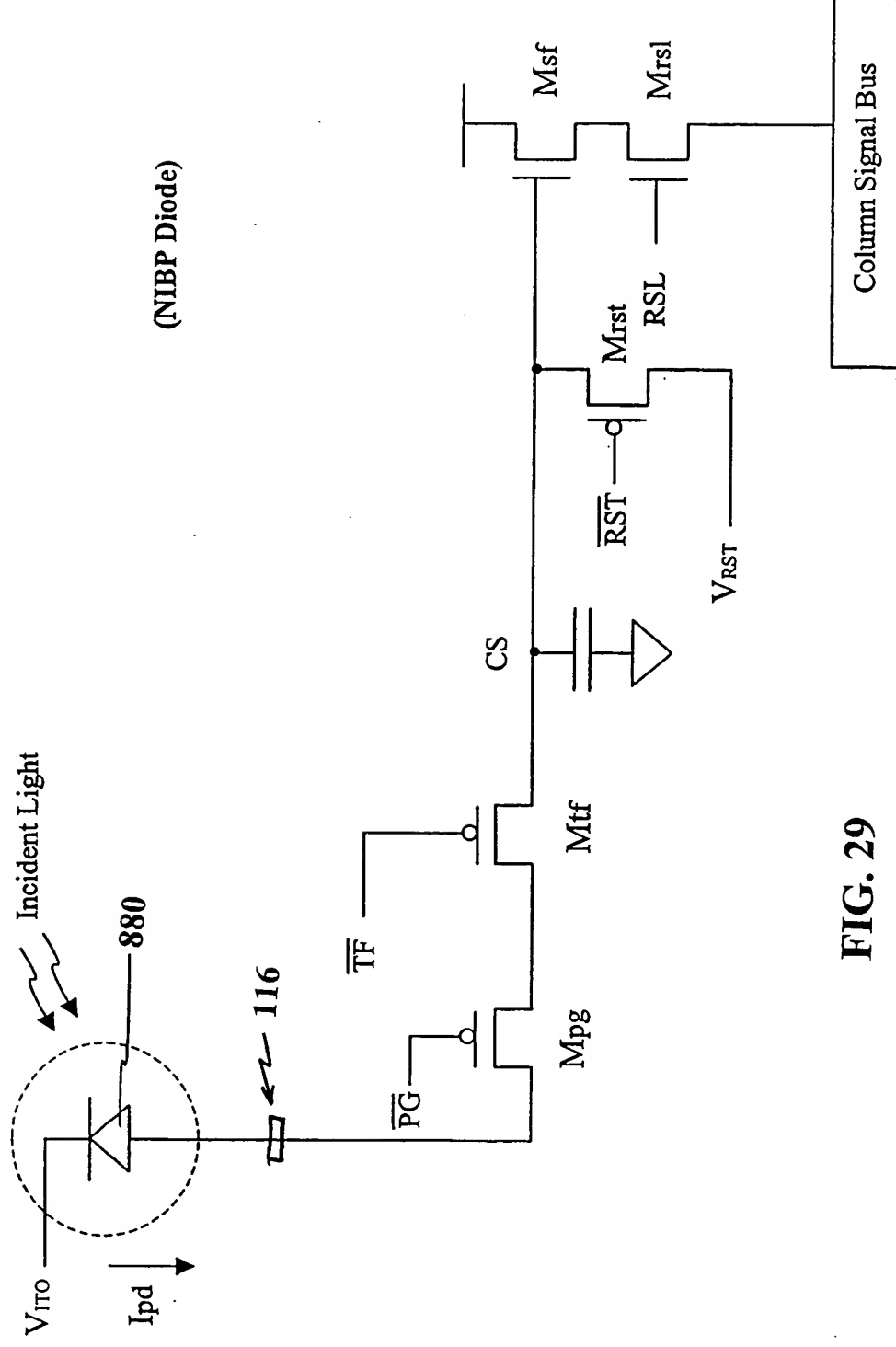
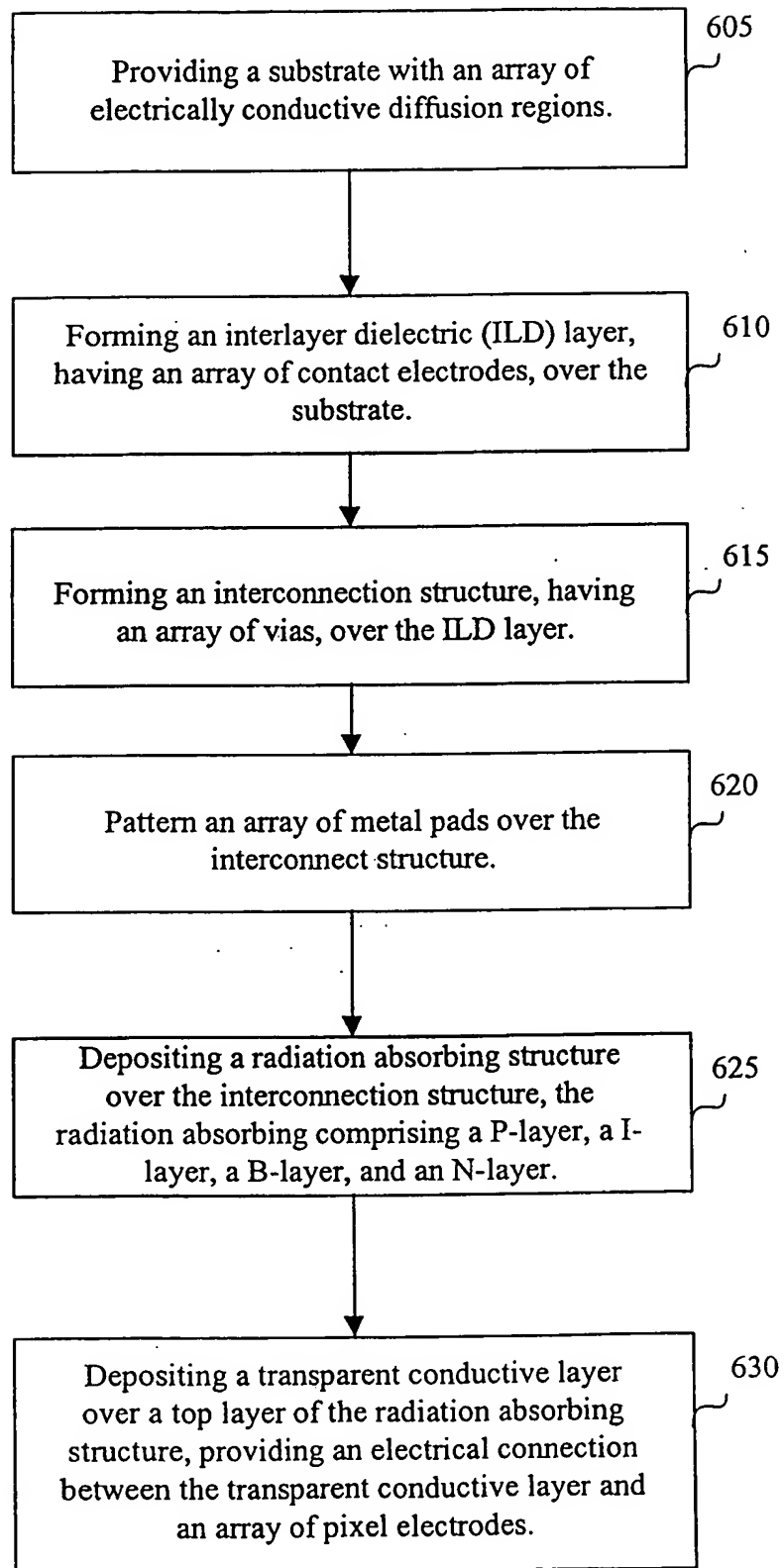


FIG. 29

## Fabricating A POAP Sensor



**FIG. 30**



# POAP Sensor Fabrication

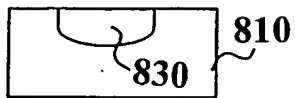


FIG. 31A

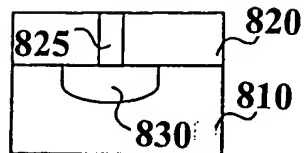


FIG. 31B

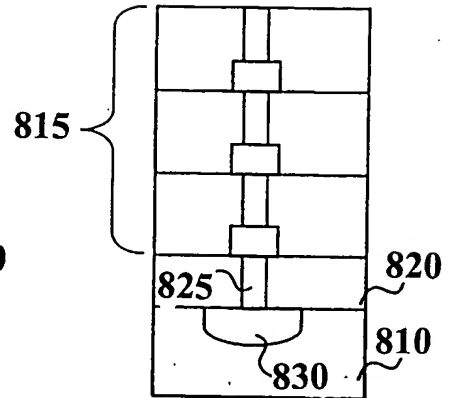


FIG. 31C

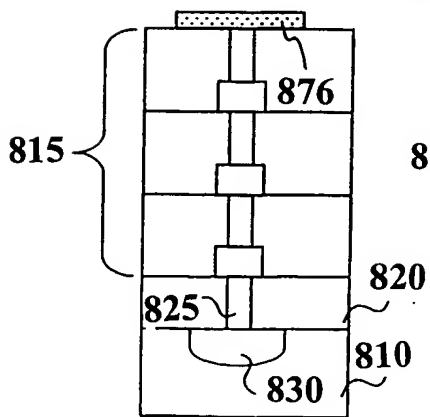


FIG. 31D

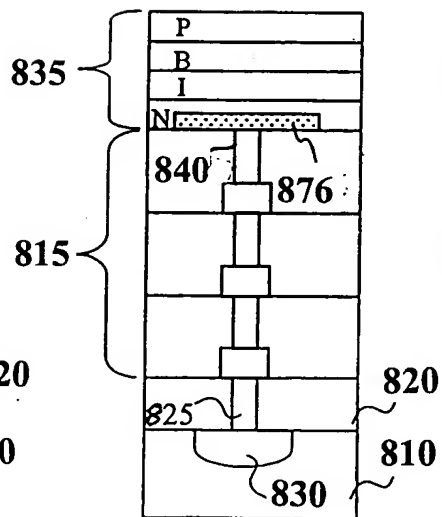


FIG. 31E

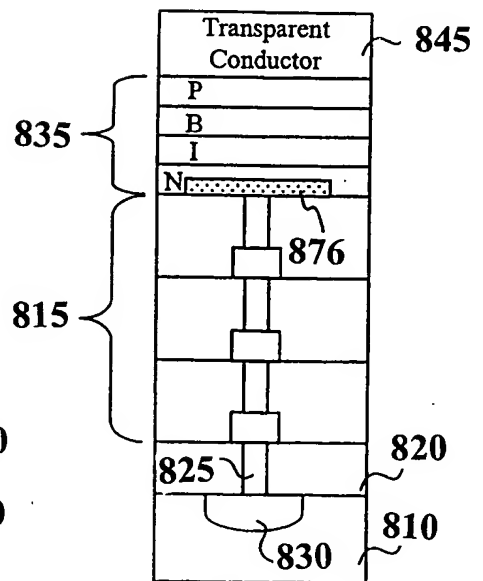


FIG. 31F